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GENERAL NOTES.

Members and friends of the Society are invited to aid the Committee on Publication in carrying out the work of this department. Communications of general interest will be gladly received, and may be sent to SIDNEY D. TOWNLEY, 2023 Bancroft Way, Berkeley, California.

On February 8, 1901, the gold medal of the Royal Astronomical Society was granted to Professor EDWARD C. PICKERING, Director of the Harvard College Observatory.

The Royal Academy of Sciences, Sweden, will hold a special session on October 24, 1901, the tercentenary of the death of TYCHO BRAHE. The society has undertaken to issue a facsimile reproduction of TYCHO'S great work, *Astronomiæ Instauratæ Progymnasmata*, of which but five copies are known to exist.

The following notice is copied from *Science*:—

"Each year there is being issued under the editorship of Professor Dr. W. WISLICENUS, from the press of GEORG REIMER, an *Astronomischer Jahresbericht*, or annual review of all kinds of astronomical publications, including writings on geodesy and navigation, if not too remotely connected with astronomy. This work is carried on under the supervision of the Astronomische Gesellschaft. The first volume contains the publications of 1899, and consists of xxiv + 537 pages, 8vo. This was issued in the spring of 1900.

"In the interests of publishers, of readers, and of the nation which he represents, the associate-editor for the United States desires to make the compilation and review of American publications on the above-named subjects as complete as possible. To this end he invites authors and publishers to favor him with the title and place of publication of each book or article issued during 1901 and each subsequent year, or a copy of the same, if convenient, that it may be reviewed for this purpose. The reviews are merely explanatory — not critical. HERMAN S. DAVIS.

"INTERNATIONAL LATITUDE OBSERVATORY, Gaithersburg, Maryland."

At a recent meeting of the Council of the Astronomical and Astrophysical Society of America it was decided to hold the next meeting of the Society at Washington, D. C., in December, 1901, instead of at Denver, in August. This change will doubtless be agreeable to most of our Eastern friends, but hardly so agreeable to some of us on the Pacific Coast who expected to attend the Denver meeting.

Professor FRANCIS E. NIPHER, of Washington University, has recently made some interesting discoveries in photography, which are of special value with regard to over-exposed solar-eclipse plates. Over-exposed plates can be developed as positives, giving fully as much sharpness and detail as the best negatives. He has found also that plates can, with proper exposure, be developed in direct sunlight. An over-exposed plate may be either developed as a negative in a perfectly dark room or as a positive in a light room. Those interested in the subject may find fuller explanations in a short article by Professor NIPHER, in *Science*, February 8, 1901.

Nova Persei was independently discovered by a number of persons. Professor E. B. FROST, at Dartmouth College, noticed the star on February 22d before having received the message announcing Dr. ANDERSON'S discovery. (See *Astronomical Journal*, No. 493.) The following note from Professor W. J. HUSSEY, who is spending his vacation in Washington, D. C., shows that the star was seen early in that part of the country also:

> "The new star in *Perseus*, found by ANDERSON in Scotland, February 21, 1901, was independently discovered in America on the following evening by Mr. RICHARD D. MICOU, a student in the University of Virginia, and by Mr. FARQUHAR, of the Patent Office, Washington, D. C. Mr. FARQUHAR sent a telephone message to the U. S. Naval Observatory announcing his discovery of the new star. Mr. MICOU informed Professor STONE of its existence, who telegraphically announced it to Harvard College Observatory."

During the past three months there has been considerable public discussion concerning the management of the United States Naval Observatory. The naval appropriation bill passed by the last Congress contains the following provision concerning the administration of the affairs of the observatory:—

> "There shall be appointed by the President, by and with the advice and consent of the Senate, from persons not officers of the United States, a board of six visitors to the Naval Observatory, four to be astronomers of high professional standing and two to be eminent citizens of the United States. Appointments to this board shall be made for periods of three years, but provision shall be made by initial appointments for shorter terms, so that two members shall retire in each year. Members of this board shall serve without compensation, but the Secretary of the Navy shall pay the actual expenses necessarily incurred by members of the board in the discharge of such duties as are assigned to them by the Secretary of the Navy or are otherwise imposed upon them. The board of visitors shall make an annual visitation to the observatory, at a date to be determined by the Secretary of the Navy, and may make such

other visitations, not exceeding two in number annually, by the full board or by a duly appointed committee, as may be deemed needful or expedient by a majority of the board. The board of visitors shall report to the Secretary of the Navy at least once in each year the result of its examination of the Naval Observatory as respects the condition of buildings, instruments, and apparatus, and the efficiency with which its scientific work is prosecuted, and shall also report as respects the expenditures in the administration of the observatory. The board of visitors shall prepare and submit to the Secretary of the Navy regulations prescribing the scope of the astronomical and other researches of the observatory and the duties of its staff with reference thereto. When an appointment or detail is to be made to the office of astronomical director, director of the Nautical Almanac, astronomer or assistant astronomer, the board of visitors may recommend to the Secretary of the Navy a suitable person to fill such office; but such recommendation shall be determined only by a majority vote of the members present at a regularly called meeting of the board held in the city of Washington. The superintendent of the Naval Observatory shall be, until further legislation by Congress, a line officer of the navy, of a rank not below that of captain."

According to the above provisions, President McKinley has appointed the following named persons as members of the Board of Visitors: St. Clair McKelway, of Brooklyn; William R. Harper, President of the University of Chicago; Charles A. Young, Director of the Observatory of Princeton University; Ormond Stone, Director of the Leander McCormick Observatory; Edward C. Pickering, Director of the Harvard College Observatory; Asaph Hall, Jr., Director of the Detroit Observatory.

The affairs of the observatory have not only been publicly discussed, but have become complicated by trouble arising between the Superintendent and the Astronomical Director. Superintendent Davis has preferred charges against Director Brown, and these have been settled, by Secretary Long detaching Professor Brown from duty as head of the Nautical Almanac force. The work of the Almanac is now in charge of Professor Harshman.

During the solar eclipse of May 28, 1900, meteorological data were obtained at various stations. The data have been discussed by Mr. H. Helm Clayton and published in a bulletin of the Blue Hill Meteorological Observatory, Annals of the Astronomical Observatory of Harvard College, Vol. XLIII, No. 1. Some highly interesting conclusions were reached, and Mr. Clayton has published a résumé of the work in the Proceedings of the

American Academy of Arts and Sciences, Vol. XXXVI, No. 16. A review of the latter by Professor R. DE C. WARD, may be found in *Science* for March 1, 1901. Mr. CLAYTON shows that the effect of the decrease in temperature is to form an eclipse cyclone, which travels — that is, forms and dissipates — with the velocity of the shadow. He summarizes his conclusions as follows:—

"In brief, the meteorological effects of the eclipse are important —

"(1) Because they confirm so fully FERREL'S theory of the cold-air cyclone;

"(2) Because they show the wonderful rapidity with which cyclonic phenomena can develop and dissipate in the atmosphere; and

"(3) Because they show that cyclones do not necessarily move with the atmosphere, but move with their originating cause, which in the eclipse had a progressive velocity of about two thousand miles an hour."

Mr. CLAYTON then goes on to consider the subject of diurnal cyclones in the light of the deductions obtained from consideration of meteorological data taken during the eclipse. The thread of Mr. CLAYTON'S argument is sufficiently shown by the following extract:—

"The discovery that the brief fall of temperature attending a solar eclipse produces a well-developed cyclone which accompanies the eclipse shadow, at the rate of about two thousand miles an hour, suggests that the fall of temperature due to the occurrence of night must also produce, or tend to produce, a cold-air cyclone. Since the heat of day produces, or tends to produce, a warm-air cyclone, there must tend to occur each day two minima of pressure, one near the coldest part of the day, and another near the warmest part of the day, with areas of high pressure between them, due to the overlapping of the pericyclones surrounding the cold-air and the warm-air cyclones respectively. These causes must produce entirely or in part the well-known double diurnal period in air-pressure. At any rate, in view of the fact that an eclipse causes a cyclone over half a hemisphere, it will be necessary before rejecting such a theory to show that the fall of temperature at night does not produce a cyclone, or that this cyclone and the corresponding warm-air cyclone of the day do not appreciably influence the barometer.

"The points in favor of the theory that the double diurnal period in pressure is due to two diurnal cyclones, one developed by the cold of night and the other by the heat of day, may be stated in brief as follows: The theory is based on well-known physical laws. The possibility of a cold-air cyclone under conditions similar to the diurnal cyclone is confirmed by the eclipse cyclone. The theory explains the annual oscillation of the time of maxima and minima of pressure in the diurnal period, and explains the occurrence of a third maximum in high northern latitudes in winter. The theory also explains why the warm-air cyclone is well developed over continents, and on clear days, and causes a marked fall in the barometer during the afternoon, while the morning minimum of pressure over continents does not attain an excessive development as compared with that over oceans where there is slight retardation of the air movements on which the fall of the barometer in the cold-air cyclones depends.

"The diurnal cyclones move from east to west, contrary to the motion of ordinary cyclones in temperate latitudes. Their velocity of motion is about one thousand miles an hour at the equator, and diminishes toward the poles."

Father HAGEN, of the Georgetown College Observatory, has published and distributed two charts and catalogues of comparison-stars for *Nova Persei*. These charts and catalogues are very useful and should be obtained by all who have made comparisons of the brightness of the new star. The series of comparisons made at the Students' Observatory, Berkeley, shows that the general decline in the brightness of the star has been varied by frequent increases, the most marked being between March 25th and 26th, when the brightness of the star increased from magnitude 5.1 to magnitude 3.8.

Mr. ANDREW GREIG, of Dundee, Scotland, has kindly forwarded the following:—

ABSTRACT OF A PAPER BY PROFESSOR GRAY ON "THE TIDES AND GENESIS OF THE MOON."

"Professor GRAY, F. R. S., successor to Lord KELVIN at University of Glasgow, lectured recently on 'The Tides and Genesis of the Moon.' The Romans were the first, he said, to detect some of the more prominent of the tidal phenomena, and to assign to these their proper place. He explained and illustrated by means of diagrams the causes of the spring and neap tides, and gave a demonstration of the equilibrium and dynamical theories of the tides. According to the equilibrium theory, there was always high water immediately under the Moon, and also on the opposite side of the Earth at the same time. The motion of rotation of the Earth is retarded by the action between the Earth and the Moon. The Earth rotates, as it were, under the friction-collar formed by the heaped-up waters on the Earth, which are held back by the Moon. Thus, the Earth is, as time goes on, caused to turn on its axis more and more slowly. It is estimated that it falls behind a true clock from this cause by about twenty-two seconds in one hundred years. The action of the Earth upon the Moon was to hasten it in its orbit, so that it was moving outward, increasing the radius of the circle. The consequence was that the length of the day and the length of the month were both increasing; but the length of the day was increasing faster than the length of the month, and thus they were approaching slowly to an equality. When that took place, there would be another change. In consequence of the action of the Sun on the tides upon the Earth, the Moon would begin to come closer in upon the Earth, and unless some other action took place upon the system, the Moon would approach the Earth until it actually fell upon its surface. But we need be under no apprehension as to this happening — it would be several millions of years before such a catastrophe took place.

"With respect to the origin of the Moon, the Earth at an early stage of its existence was a semi-solid, semi-fluid, plastic mass, spinning round on its axis in a period of three to five hours. The period in which a wave would have gone round the Earth would have been about three hours, or nearly equal to the period in which the Earth went spinning round. Now, if a wave produced by the action of the Sun went round the Earth in three hours, each time it returned to receive the Sun's action it would be increased in size. The Earth was spinning at a great rate; and the result would be that parts of it would fly off like the rim of an over-driven fly-wheel, and one or more of these fragments formed the Moon. The Moon continued to go round in a similar orbit to the Earth, but rather more slowly than when it left the Earth. Immediately it began to go further and further out, and this was what it was still doing."

The value of *Eros* for the redetermination of the solar parallax has been noted repeatedly in these *Publications*. But it holds other attractions for astronomers as well. Professor PICKERING early pointed out that it was well situated for the investigation of certain photometric problems; for instance, whether the light of a planet varied inversely as the square of the distance. And now observers with the photometer find that the light of the little planet varies considerably in a very short period of time. Dr. E. VON OPPOLZER seems to have been the first one to call attention to this interesting phenomenon, but his announcement in the *Astronomische Nachrichten* received prompt confirmation from a number of other observers.

From observations so far published the range of variation seems to be considerably greater than one magnitude, and the interval from maximum to maximum or from minimum to minimum to be less than three hours. It has been suggested that the variation is due to the rapid rotation of *Eros* — the opposite hemispheres of the little planet being assumed to possess different albedos, or powers of reflecting light.

Mr. ST. CLAIR MCKELWAY, of Brooklyn, has declined the tender of a place on the Board of Visitors of the United States Naval Observatory, and Secretary LONG has designated for the place Professor CHARLES F. CHANDLER, of Columbia University, New York, who has accepted.